



THE CITY OF SAN DIEGO

City of San Diego
Planning & Development Review
Building Development Review
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Building Newsletter 18-4

Concrete Foundation Walls

Interpretations of State and Local Building Codes
1998 California Building Code: Chapter 18
Revision Date: July 1999

Page 1 of 2

I. General

Section 1922.10.3 of the Building Code allows unreinforced *plain* concrete footings in Seismic Zones 2, 3 and 4 only for Group R, Division 3 and Group U, Division 1 Occupancies. The footings must be constructed in accordance with Table 18-I-C.

However, Section 1806.7 contains additional requirements for reinforcing in footings in Seismic Zones 3 and 4. These reinforcing requirements are shown in this newsletter.

II. Thickness of Concrete Foundation Walls

- Minimum thickness of foundation walls for stud bearing walls are specified in Table 18-I-C of the Building Code. Foundation stem walls for one-story structures are required to be six inches thick; two-story structures are required to have stem walls eight inches thick.
- Foundation stem walls must maintain the required thickness for their full height except for a reduction in thickness which can comply with the requirements illustrated in Figures 1 and 2 below. Approved shot pins shall not be placed in foundation walls with such reduced thickness unless the resulting edge

distances equal or exceed the minimum required in the shot pin installation instructions.

III. Height of Concrete Foundation Walls

- The Building Code does not specify a maximum allowable height for *unreinforced* concrete foundation stem walls. The following limitations shall apply to foundation walls constructed of *unreinforced* concrete except where structural calculations indicate otherwise.
 - Free-standing stem walls supporting crippled framing and not stabilized at the top are limited in height to three times the nominal thickness. See Figure 3 below.
 - Stem walls stabilized at the top by a frame floor system are limited in height to six times the nominal thickness. See Figure 4 below.
- Height limitations defined by Section III, Item A above shall be measured from the top of the foundation; backfill against stem walls shall not exceed 18 inches of retained earth (difference of finish grade elevation on each side of wall). See Figures 5, 6 and 7 of this Building Newsletter.

Figure 1/One-story foundation

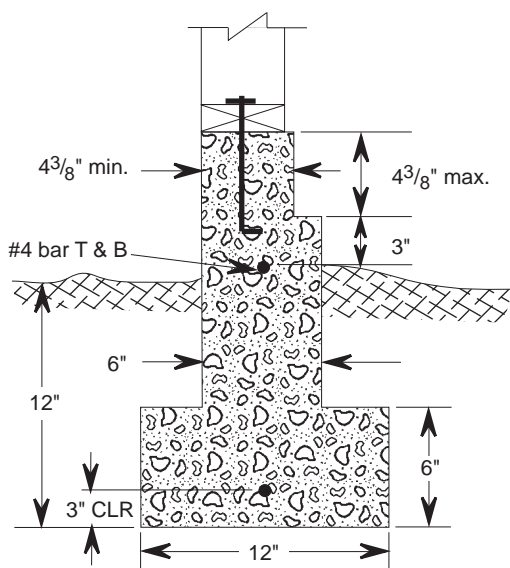


Figure 2/Two-story foundation

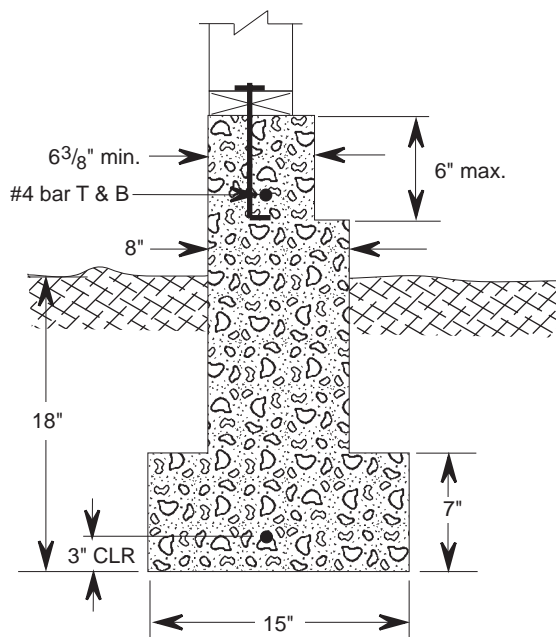
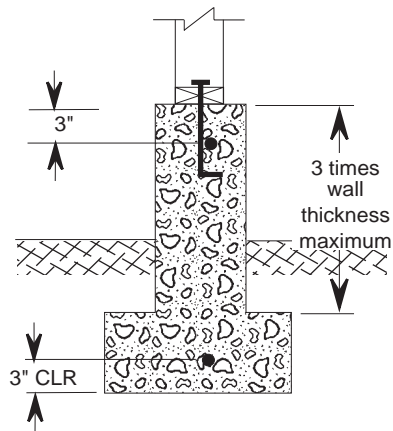
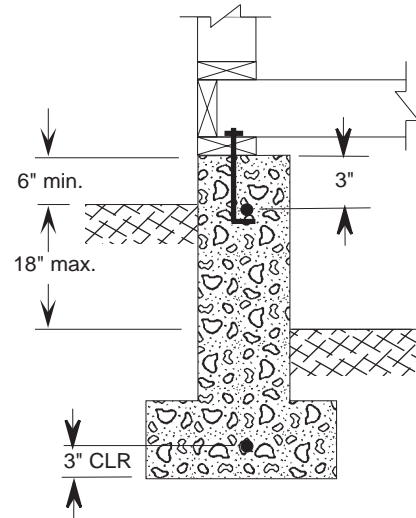
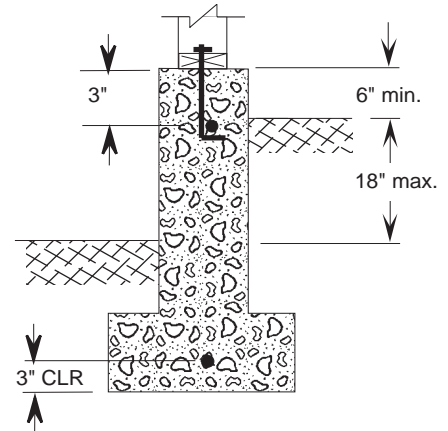
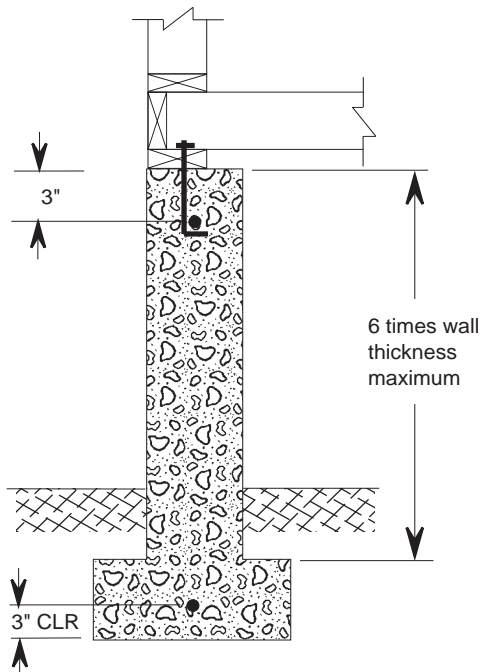


Figure 3/Free-standing stem wall**Figure 5/Backfill with raised wood floor****Figure 6/Backfill with free-standing stem wall****Figure 4/Restrained stem wall****Figure 7/Backfill with slab-on-grade**